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| EXAMINER | |
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| LOO, JUVENA W | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/542,220 | NAGATA ET AL. | |
| | Examiner | Art Unit | |
| | JUVENA LOO | 2473 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *16 December 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *2-5,7-12 and 14-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *11 and 12* is/are allowed.

6)☒ Claim(s) *2-5,7-10,and 14-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2, 3, 4, 15, 16, and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. In particular, neither the specification nor the claims specifically describe what is meant by "data packets having the same packet time length". Applicant defines "packets having a same packet time length" as data packets that are the same in time required for transmission" (page 21, lines 12 - 18 in specification). This definition is vague because it can be interpreted as one of the following:

a. "packets are simultaneously transmitted from one station to another station occupying/having the same time length such as time slot";

b. "simultaneously transmitting data packets that take the same transmission time required from one station to another station";

c. "the data packets that are simultaneously transmitted from one station will be received at the same time at another station".

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 2, 3, 9, 18 – 20, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Kasami et al. (US 2002/0181492 A1).

Regarding claim 2, *a wireless packet communication method transmitting a data packet between two stations ("STAs") that use using plural radio channels, by using a radio channel* (Kasami: see Figures 1 and 20 and "The wireless…end signal" in Abstract) *that is judged idle by carrier sensing* (Kasami: see "According to…Collision Avoidance protocol" in page 2, section 0019) *and, characterized by*:

*when it is detected by said carrier sensing that plural radio channels are idle at the same time* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; the control sections sense the carriers at the same time and wait until both are available to start transmission, i.e. same transmission start time for both wireless module 102-1 and 102-2);

*generating plural data packets having a same packet time length* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are

transmitted" in page 13, sections 0182 – 0187; the data packets 701-0 and 703-0 can be made to have the same time length), a*nd*

*transmitting plural data packets having the same packet time length simultaneously from one STA to another STA using plural idle radio channels* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; the wireless modules 102-1 and 102-2 can be made the same as each other; therefore, the start and end transmission times are made the same and the data packets 701-0 and 703-0 are made to have the same time length).

Regarding claim 3, *a wireless packet communication method transmitting a data packet between two stations ("STAs") that use plural radio channels and setting transmission rates for respective radio channels* (Kasami: see Figures 1 and 20 and "The wireless…end signal" in Abstract)*, by using a radio channel that is judged idle by carrier sensing* (Kasami: see "According to…Collision Avoidance protocol" in page 2, section 0019), *characterized by*:

*when it is detected by said carrier sensing that plural radio channels are idle at the same time* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; the control sections sense the carriers at the same time and wait until both are available to start

transmission, i.e. same transmission start time for both wireless module 102-1 and 102-2);

*generating plural data packets having a same packet time length in accordance with transmission rates of plural idle radio channels* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; the data packets 701-0 and 703-0 can be made to have the same time length); *and*

*transmitting plural data packets having the same packet time length simultaneously from one STA to another STA using plural idle radio channels* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; the wireless modules 102-1 and 102-2 can be made the same as each other; therefore, the start and end transmission times are made the same and the data packets 701-0 and 703-0 are made to have the same time length).

Regarding claim 9, *characterized in that*:

*while said STA itself is performing a transmission on at least one radio channel* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; packet transmission through wireless modules 102-1, 102-2),

*said STA defers any transmission process including carrier sensing until completion of said transmission* (Kasami: see Figure 25, data packets 701-0 and 703-0;

see also “The wireless…end times are transmitted” in page 13, sections 0182 – 0187; transmission of packet will not start until the transmission start time is reached).

Regarding claim 18, *a wireless packet communication apparatus for transmitting a data packet between two stations (“STAs”) capable of using plural radio channels* (Kasami: see Figures 1 and 20 and “The wireless…end signal” in Abstract)*, by using a radio channel that is judged idle by carrier sensing* (Kasami: see “According to…Collision Avoidance protocol” in page 2, section 0019), *characterized in that it comprises*:

*transmission buffer block that temporarily holds data frames to be transmitted* (Kasami: see Figures 5 and 8, Transmission data supply section 10; see also “The wireless…same timing” in claim 3)*, holds information regarding stored data packets that correlates address information of data frames it holds with packet sizes, and reads out and outputs a requested data packet when receiving a packet sending request* (Kasami: see Figure 8 and "FIG. 8 shows a circuit...same time" in page 6, sections 0088 - 0091; see also Figures 12 and 14 and "The wireless communication system…are finished” in page 9, section 0125 – 0131; see also Figures 15 (A and B), 16 (A, B, and C) and 17; see also “Now, procedures for transmitting/receiving…from the station 4-2.” In page 9, section 0132 through page 10, section 0137);

*channels' occupation status analyzing block that acquires pieces of idle state judgment information of a predetermined plural number of respective radio channels* (Kasami: see Figure 20 and “As shown in…wireless packets” in page 11, section 0153);

*data packet generating block that extracts a data region or regions from one or plural received data frames* (Kasami: see Figures 5 and 8, Transmission data supply section 10; see also "The wireless…same timing" in claim 3 ; see also "FIG. 8 shows…transmission data" in page 6, sections 0088 – 0089)*, generates plural data blocks having a same packet time length* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; the wireless modules 102-1 and 102-2 can be made the same as each other; therefore, the start and end transmission times are made the same and the data packets 701-0 and 703-0 are made to have the same time length)*, and generates data packets by adding necessary header information to said data blocks* (Kasami: see Figures 6 and 7; see also "When there exists…transmission data" in page 6, section 0089);

*packet switching block that correlates said data packets generated by said data packet generating block with radio channels to be used for transmission, respectively* (Kasami: see Figure 8 and "FIG. 8 shows…array antenna 2" in page 6, sections 0088 – 0090; see also Figure 12 and "The access point….an antenna 65" in page 8, section 0123 – page 9, section 0124; see also Figures 28 and 29; see also "The system…mode, respectively" in page 14, section 0202 – page 15, section 0204); *and*

*data frame management block that determines one or plural data frames from which to generate data packets on the basis of pieces of information relating to respective data frames that are communicated from said transmission buffer block and information relating to radio channels that is communicated from said channels'*

*occupation status analyzing block* (Kasami: see Figure 8 and "FIG. 8 shows…array antenna 2" in page 6, sections 0088 – 0090; see also Figure 12 and "The access point….an antenna 65" in page 8, section 0123 – page 9, section 0124; see also Figures 20 – 22 and "In the wireless…antenna bypassing" in page 11, section 0152 – page 12, section 0167), *and the data frame management block determines a method to generate plural data packets from one or plural data frames in accordance with the number of idle radio channels* (Kasami: see Figure 8 and "FIG. 8 shows…array antenna 2" in page 6, sections 0088 – 0090; see also Figure 12 and "The access point….an antenna 65" in page 8, section 0123 – page 9, section 0124; see also Figures 20 – 22 and "In the wireless…antenna bypassing" in page 11, section 0152 – page 12, section 0167), *determines radio channels on which to transmit said plural generated data packets* (Kasami: see Figure 8 and "FIG. 8 shows…array antenna 2" in page 6, sections 0088 – 0090; see also Figure 12 and "The access point….an antenna 65" in page 8, section 0123 – page 9, section 0124; see also Figures 20 – 22 and "In the wireless…antenna bypassing" in page 11, section 0152 – page 12, section 0167), *gives said transmission buffer block designation of a data frame or frames to be output* (Kasami: see Figure 8 and "FIG. 8 shows…array antenna 2" in page 6, sections 0088 – 0090; see also Figure 12 and "The access point….an antenna 65" in page 8, section 0123 – page 9, section 0124; see also Figures 20 – 22 and "In the wireless…antenna bypassing" in page 11, section 0152 – page 12, section 0167), *informs said data packet generating block of a method generating data packets from one or plural data frames that are output from said transmission buffer block* (Kasami: see Figure 8 and "FIG. 8

shows…array antenna 2" in page 6, sections 0088 – 0090; see also Figure 12 and "The access point….an antenna 65" in page 8, section 0123 – page 9, section 0124; see also Figures 20 – 22 and "In the wireless…antenna bypassing" in page 11, section 0152 – page 12, section 0167)*, and communicates, to said packet switching block, information that is necessary for correlating said data packets with said radio channels* (Kasami: see Figure 8 and "FIG. 8 shows…array antenna 2" in page 6, sections 0088 – 0090; see also Figure 12 and "The access point….an antenna 65" in page 8, section 0123 – page 9, section 0124; see also Figures 20 – 22 and "In the wireless…antenna bypassing" in page 11, section 0152 – page 12, section 0167), *said wireless packet communication apparatus further characterized in that*

*plural data packets are transmitted simultaneously from one STA to another STA by using plural idle radio channels* (see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; the wireless modules 102-1 and 102-2 can be made the same as each other; therefore, the start and end transmission times are made the same and the data packets 701-0 and 703-0 are made to have the same time length).

Regarding claim 19, *characterized in that it further comprises*:

*a Multiple Input Multiple Output ("MIMO") block that transmits plural independent signals simultaneously on said respective radio channels* (Kasami: see also Figures 28 and 29; see also "The system…mode, respectively" in page 14, section 0202 – page 15, section 0204).

Regarding claim 20, *characterized in that*:

*when it is detected by said carrier sensing that plural radio channels are idle at the same time* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; the wireless modules 102-1 and 102-2 can be made the same as each other; therefore, the start and end transmission times are made the same and the data packets 701-0 and 703-0 are made to have the same time length).

Regarding claim 27, *characterized in that*:

*while said STA itself is performing a transmission on at least one radio channel* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; packet transmission through wireless modules 102-1, 102-2),

*said STA defers any transmission process including carrier sensing until completion of said transmission* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; transmission of packet will not start until the transmission start time is reached).

6. Claim 4, 21, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasami et al. (US 2002/0181492 A1) in view of Okawa et al. (US 6,842,442 B2).

Regarding claim 4, *a wireless packet communication method transmitting a data packet between two stations ("STAs") that use using plural radio channels and setting transmission rates for respective radio channels, by using a radio channel* (Kasami: see Figures 1 and 20 and "The wireless…end signal" in Abstract) that is judged idle by carrier sensing (Kasami: see "According to…Collision Avoidance protocol" in page 2, section 0019), *characterized by*:

*when it is detected by said carrier sensing that plural radio channels are idle at the same time* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; the control sections sense the carriers at the same time and wait until both are available to start transmission, i.e. same transmission start time for both wireless module 102-1 and 102-2);

*generating plural data packets having a same packet time length* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; the data packets 701-0 and 703-0 can be made to have the same time length); *and*

*transmitting plural data packets having the same packet time length simultaneously from one STA to another STA using plural idle radio channels* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; the wireless modules 102-1 and 102-2 can be made the same as each other; therefore, the start and end transmission times

are made the same and the data packets 701-0 and 703-0 are made to have the same time length).

However, Kasami does not explicitly disclose the features comprising:

*setting transmission rates of plural idle radio channels to a same transmission rate*.

Okawa discloses a DS-CDMA transmission method comprising the feature:

*setting transmission rates of plural idle radio channels to a same transmission rate* (Okawa: see "the spreading is performed such that the transmission signal is transmitted at the same transmission rate over each of said plurality of code channels" in column 10, claim 2).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Kasami et al. by using the feature, as taught by Okawa, in order to implement high bit rate signal transmission (Okawa: see column 1, lines 49 – 52).

Regarding claim 21, *characterized in that*:

*said two STAs include means capable of setting transmission rates for respective radio channels* (Okawa: see "the spreading is performed such that the transmission

signal is transmitted at the same transmission rate over each of said plurality of code channels" in column 10, claim 2); *and*

*when it is detected by said carrier sensing that plural radio channels are idle at the same time* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; the wireless modules 102-1 and 102-2 can be made the same as each other; therefore, the start and end transmission times are made the same and the data packets 701-0 and 703-0 are made to have the same time length).

Regarding claim 22, *characterized in that*:

*said two STAs include means capable of setting transmission rates for respective radio channels* (Okawa: see "the spreading is performed such that the transmission signal is transmitted at the same transmission rate over each of said plurality of code channels" in column 10, claim 2); *and*

*when it is detected by said carrier sensing that plural radio channels are idle at the same time* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; the wireless modules 102-1 and 102-2 can be made the same as each other; therefore, the start and end transmission times are made the same and the data packets 701-0 and 703-0 are made to have the same time length),

*said data frame management block performs a control to set transmission rates of plural idle radio channels to a same transmission rate* (Okawa: see "the spreading is

performed such that the transmission signal is transmitted at the same transmission rate over each of said plurality of code channels" in column 10, claim 2; Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187) *and to generate plural data packets having the same packet time length from one or plural data frames* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; the wireless modules 102-1 and 102-2 can be made the same as each other; therefore, the start and end transmission times are made the same and the data packets 701-0 and 703-0 are made to have the same time length).

Regarding claim 24, *characterized in that it further comprises*:

*while an own station is performing a transmission on at least one radio channel* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187),

*means to prohibit any transmission process including carrier sensing until completion of said transmission* (Kasami: see Figure 8 and "FIG. 8 shows…array antenna 2" in page 6, sections 0088 – 0090; see also Figure 12 and "The access point….an antenna 65" in page 8, section 0123 – page 9, section 0124; see also Figures 20 – 22 and "In the wireless…antenna bypassing" in page 11, section 0152 – page 12, section 0167; see also Figure 8 and "FIG. 8 shows…array antenna 2" in page 6, sections 0088 – 0090; see also Figure 12 and "The access point….an antenna 65" in

page 8, section 0123 – page 9, section 0124; see also Figures 20 – 22 and "In the wireless…antenna bypassing" in page 11, section 0152 – page 12, section 0167).

7. Claims 7, 8, 10, 14, 17, 23, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasami et al. (US 2002/0181492 A1) in view of Chang et al. (US 2004/0114506 A1).

Regarding claim 7, *characterized by*:

*transmitting plural data packets having a same packet time length simultaneously from one STA to another STA using plural idle radio channels* and said Multiple Input Multiple Output ("MIMOs") (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; packet transmission from wireless modules 102-1 and 102-2 at the same time; Chang: see "In one…pilot signals" in page 1, sections 0010 - 0014), *the plural data packets being in a number that is equal to a sum of MIMO numbers of plural respective radio channels* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; packet transmission from wireless modules 102-1 and 102-2 at the same time; Chang: see "In one…pilot signals" in page 1, sections 0010 - 0014), *and said STAs capable of using plural radio channels and MIMO together* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections

0182 – 0187; packet transmission from wireless modules 102-1 and 102-2 at the same time; Chang: see "In one…pilot signals" in page 1, sections 0010 - 0014).

Regarding claim 8, *characterized in that*:

*while said STA itself is performing a transmission on at least one radio channel* (Kasami: see Figure 25, data packets 701-0 and 703-0; see also "The wireless…end times are transmitted" in page 13, sections 0182 – 0187; packet transmission through wireless modules 102-1, 102-2).

*said STA selects, from idle radio channels, a radio channel or channels that is not influenced from leakage power from said radio channel being used for said transmission* (Chang: see "The step (b)…power leakage value" in page 1, section 0011).

Regarding claim 10, characterized in that:

*said STA simultaneously transmits data packets generated from all transmission-standby data frames when a number of transmission-standby data frames is smaller than or equal to a number of idle channels* (Chang: see "In one…pilot signals" in page 1, sections 0010 - 0014); *and*

*said STA generates and simultaneously transmits a same number of data packets as the idle radio channels when the number of transmission-standby data frames exceeds the number of idle radio channels* (Chang: see "In one…pilot signals" in page 1, sections 0010 - 0014).

Regarding claim 14, *characterized in that*:

*said STA simultaneously transmits data packets generated from all transmission-standby data frames when the number of transmission-standby data frames is smaller than or equal to the number of simultaneous transmissions, the number of simultaneous transmission being said sum of said MIMO numbers of said plural respective radio channels* (Chang: see "In one…pilot signals" in page 1, sections 0010 - 0014); *and*

*generates and simultaneously transmits a same number of data packets as said number of simultaneous transmissions when the number of transmission-standby data frames exceeds said number of simultaneous transmissions* (Chang: see "In one…pilot signals" in page 1, sections 0010 - 0014).

Regarding claim 17, *characterized in that*:

*said STA selects one of a first mode in which a single radio channel is used and MIMO is not used* (Chang: see page 7, section 0084; SISO OFDM system), *a second mode in which a single radio channel and MIMO are used* (Chang: see Figure 11; see also page 12, claim 12 and page 13, claim 18), *a third mode in which plural radio channels are used and MIMO is not used* (Chang: see Figure 9), *and a fourth mode in which plural radio channels and MIMO are used* (Chang: see Figure 12), *the selecting by the STA done according to at least one of the number of idle channels, a MIMO number of each radio channel, and a number of transmission-standby data frames* (Chang: see "It is an object…b the pilot signals" in page 1, sections 0008 – 0015).

Regarding claim 23, *characterized in that it further comprises*:

*while an own station is performing a transmission on at least one radio channel, means to select, from idle radio channels, a radio channel or channels that is not influenced by leakage power from said radio channel being used for said transmission* (Chang: see "It is an object…b the pilot signals" in page 1, sections 0008 – 0015).

Regarding claim 25, *characterized in that*:

*said data frame management block includes means that selects one of a first mode in which a single radio channel is used and MIMO is not used* (Chang: see page 7, section 0084; SISO OFDM system), *a second mode in which a single radio channel and MIMO are used* (Chang: see Figure 11; see also page 12, claim 12 and page 13, claim 18), *a third mode in which plural radio channels are used and MIMO is not used* (Chang: see Figure 9), *and a fourth mode in which plural radio channels and MIMO are used* (Chang: see Figure 12), *the selecting by the means done according to at least one of the number of idle channels, a MIMO number of each radio channel, and the number of transmission-standby data frames* (Chang: see "It is an object…b the pilot signals" in page 1, sections 0008 – 0015).

Regarding claim 26, *characterized in that*:

*while said STA itself is performing a transmission on at least one radio channel, said STA selects, from idle radio channels, a radio channel or channels that is not influenced*

*from leakage power from said radio channel being used for said transmission* (Chang: see "It is an object…b the pilot signals" in page 1, sections 0008 – 0015).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Kasami by using the features, as taught by Chang, in order to provide a transmitting method for an OFDM system using at least one antenna (Chang: see page 1, section 0010).

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kasami et al. (US 2002/0181492 A1) in view of Okawa et al. (US 6,842,442 B2) and further in view of Miyoshi et al. (US 2003/0022629 A1).

Regarding claim 5, *characterized by:*

*setting said transmission rates of said plural idle radio channels equal to a lowest one of said transmission rates* (Miyoshi: see "In the radio resource…selection method" in page 11, section 0164).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Kasami and Okawa by using the feature, as taught by Miyoshi, in order to make the transmission possible for all communication channels/terminals (Miyoshi: see page 11, section 0164).

***Allowable Subject Matter***

8. Claims 11 and 12 are allowed.

9. Claims 15 and 16 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

10. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 11, the prior arts do not explicitly disclose the features:

*when a number K of transmission-standby data frames exceeds the number N of idle channels,*

*said STA waits until a relationship N ≥ K is satisfied, all radio channels become idle before said relationship N ≥ K is satisfied, a prescribed time elapses before said relationship N ≥ K is satisfied, or the number or a data size of transmission-standby data frames reaches a prescribed value before said relationship N ≥ K is satisfied; and then*

*generates and simultaneously transmits data packets in a number according to the number of idle radio channels.*

Regarding claim 12, the prior arts do not explicitly disclose the features:

*when a number K of transmission-standby data frames is smaller than a number N of idle channels,*

*said STA waits until a relationship N = K is satisfied, a prescribed time elapses before said relationship N = K is satisfied, or the number or a data size of transmission-*

*standby data frames reaches a prescribed value before said relationship N = K is satisfied; and then*

*generates and simultaneously transmits plural data packets.*

Regarding claim 15, the prior arts do not explicitly disclose the features:

*when a number K of transmission-standby data frames exceeds a number of simultaneous transmissions T, the number of simultaneous transmissions T being said sum of said MIMO numbers of said plural respective radio channels,*

*said STA waits until a relationship T ≥ K is satisfied, all radio channels become idle before said relationship T ≥ K is satisfied, a prescribed time elapses before said relationship T _> K is satisfied, or a number or a data size of transmission-standby data frames reaches a prescribed value before said relationship T ≥ K is satisfied; and then*

*said STA generates and simultaneously transmits data packets in a number according to the number of simultaneous transmissions.*

Regarding claim 16, the prior arts do not explicitly disclose the features:

*when a number K of transmission-standby data frames is smaller than a number of simultaneous transmissions T, the number of simultaneous transmissions T being said sum of said MIMO numbers of said plural respective radio channels,*

*said STA waits until a relationship T = K is satisfied, a prescribed time elapses before said relationship T = K is satisfied, or a number or a data size of transmission-*

*standby data frames reaches a prescribed value before said relationship T = K is satisfied; and then*

*said STA generates and simultaneously transmits plural data packets.*

## *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUVENA LOO whose telephone number is (571)270-1974. The examiner can normally be reached on Monday - Friday: 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Hanh Nguyen/ JUVENA LOO

Primary Examiner, Art Unit 2473

Examiner
Art Unit 2473
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